

## General

### Title

Acute respiratory failure: percentage of circuits used per 7-day blocks of mechanical ventilation (MV).

### Source(s)

Quality indicators in critically ill patients. Madrid (Spain): Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC); 2011. 185 p.

## Measure Domain

### Primary Measure Domain

Clinical Quality Measures: Process

### Secondary Measure Domain

Does not apply to this measure

## Brief Abstract

### Description

This measure is used to assess the percentage of circuits used per 7-day blocks of mechanical ventilation (MV).

### Rationale

The aim of intensive care medicine is to provide critical patients with the healthcare that they need, ensuring the quality and safety of care. Intensive care medicine is one of the principal components of modern healthcare systems. There is an increasing demand for this resource, which involves high costs.

The quality of care has gradually come to be the central focus of healthcare, and in recent years patient safety has come to represent one of the key aspects of quality. In the case of intensive care medicine, this interest in quality is even more evident, not only because of its social and economic impact, but also because some of the dimensions involved in the quality of care of critical patients take on greater importance: critical patients are more vulnerable, access to critical care is more limited so efforts to distribute resources equitably are more important, scant scientific evidence is available, and the

efficiency is limited.

Routine circuit change is associated with increased ventilator-associated pneumonia (VAP). Circuits should be changed only when a malfunction is detected. Circuits should not be changed more often than once every 7 days. Ensuring circuits are not changed too often lowers costs; this measure is easy to apply and monitor in all units.

Circuits are still routinely changed in 55% of cases.

## Evidence for Rationale

Branson RD. The ventilator circuit and ventilator-associated pneumonia. *Respir Care*. 2005 Jun;50(6):774-85; discussion 785-7. [86 references] [PubMed](#)

Han J, Liu Y. Effect of ventilator circuit changes on ventilator-associated pneumonia: a systematic review and meta-analysis. *Respir Care*. 2010 Apr;55(4):467-74. [29 references] [PubMed](#)

Kaynar AM, Mathew JJ, Hudlin MM, Gingras DJ, Ritz RH, Jackson MR, Kacmarek RM, Kollef MH. Attitudes of respiratory therapists and nurses about measures to prevent ventilator-associated pneumonia: a multicenter, cross-sectional survey study. *Respir Care*. 2007 Dec;52(12):1687-94. [PubMed](#)

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## Primary Health Components

Acute respiratory failure; ventilator circuit; mechanical ventilation (MV)

## Denominator Description

Total number of 7-day blocks of mechanical ventilation (MV) (days MV/7) (see the related "Denominator Inclusions/Exclusions" field)

## Numerator Description

Number of circuits used

## Evidence Supporting the Measure

### Type of Evidence Supporting the Criterion of Quality for the Measure

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

A systematic review of the clinical research literature (e.g., Cochrane Review)

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

## Additional Information Supporting Need for the Measure

Unspecified

## Extent of Measure Testing

Unspecified

## State of Use of the Measure

### State of Use

Current routine use

### Current Use

not defined yet

## Application of the Measure in its Current Use

### Measurement Setting

Hospital Inpatient

Intensive Care Units

### Professionals Involved in Delivery of Health Services

not defined yet

### Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

### Statement of Acceptable Minimum Sample Size

Unspecified

### Target Population Age

Age greater than or equal to 18 years

### Target Population Gender

Either male or female

# National Strategy for Quality Improvement in Health Care

## National Quality Strategy Aim

Better Care

## National Quality Strategy Priority

Making Quality Care More Affordable

Prevention and Treatment of Leading Causes of Mortality

# Institute of Medicine (IOM) National Health Care Quality Report Categories

## IOM Care Need

Getting Better

## IOM Domain

Effectiveness

Efficiency

# Data Collection for the Measure

## Case Finding Period

Unspecified

## Denominator Sampling Frame

Patients associated with provider

## Denominator (Index) Event or Characteristic

Institutionalization

Therapeutic Intervention

## Denominator Time Window

not defined yet

## Denominator Inclusions/Exclusions

### Inclusions

Total number of 7-day blocks of mechanical ventilation (MV) (days MV/7)

Population: All patients undergoing MV during the period reviewed.

### Exclusions

Unspecified

## Exclusions/Exceptions

not defined yet

## Numerator Inclusions/Exclusions

### Inclusions

Number of circuits used

### Exclusions

Unspecified

## Numerator Search Strategy

Institutionalization

## Data Source

Electronic health/medical record

Paper medical record

Registry data

## Type of Health State

Does not apply to this measure

## Instruments Used and/or Associated with the Measure

Unspecified

## Computation of the Measure

## Measure Specifies Disaggregation

Does not apply to this measure

## Scoring

Rate/Proportion

## Interpretation of Score

Desired value is a lower score

## Allowance for Patient or Population Factors

not defined yet

## Standard of Comparison

not defined yet

## Prescriptive Standard

Standard: less than 100%

## Evidence for Prescriptive Standard

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## Identifying Information

### Original Title

Ventilator circuit change at 7 days.

### Measure Collection Name

Quality Indicators in Critically Ill Patients

### Measure Set Name

Acute Respiratory Failure

### Submitter

Spanish Society of Intensive and Critical Care and Units Coronary - Clinical Specialty Collaboration

### Developer

Spanish Society of Intensive and Critical Care and Units Coronary - Clinical Specialty Collaboration

### Funding Source(s)

Boehringer Laboratories

# Composition of the Group that Developed the Measure

Work Group for Acute Respiratory Failure

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## Financial Disclosures/Other Potential Conflicts of Interest

Unspecified

## Adaptation

This measure was not adapted from another source.

## Date of Most Current Version in NQMC

2011 Mar

## Measure Maintenance

Unspecified

## Date of Next Anticipated Revision

2016 Jul

## Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in May 2016.

## Measure Availability

Source available in [English](#)  and [Spanish](#)  from the Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC) Web site.

For more information, contact SEMICYUC at Paseo de la Reina Cristina, 36, 4<sup>o</sup> D, Madrid, Spain; Phone: +34-91-502-12-13; Fax: +34-91-502-12-14; Web site: [www.semicyuc.org](http://www.semicyuc.org) ; E-mail: [secretaria@semicyuc.org](mailto:secretaria@semicyuc.org).

## NQMC Status

This NQMC summary was completed by ECRI Institute on December 10, 2013. The information was verified by the measure developer on February 6, 2014.

The information was reaffirmed by the measure developer on May 10, 2016.

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## Production

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